UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,208	10/27/2003	Alexander E. Andreev	03-2064/L13.12-0254	3830

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EXAMINER
DINH, PAUL

ART UNIT	PAPER NUMBER
2825	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		10/694,208	ANDREEV ET AL.
		Examiner	Art Unit
		Paul Dinh	2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*10/27/03 to 6/8/05*</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>27 October 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All   b)☐ Some * c)☐ None of:

　　　　1.☐ Certified copies of the priority documents have been received.

　　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>6/8/05</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Objections

Claim 8 is objected to because the limitation " flip-flop cell an integrated circuit" appears missing

transition word(s) and/or should be reworded.

Claim Rejections - 35 USC § 102

> The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis
> for the rejections under this section made in this Office action:
> A person shall be entitled to a patent unless –
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or
> on sale in this country, more than one year prior to the date of application for patent in the United States.

> (e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in
> the United States before the invention by the applicant for patent or (2) a patent granted on an application for
> patent by another filed in the United States before the invention by the applicant for patent, except that an
> international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this
> subsection of an application filed in the United States only if the international application designated the United
> States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 7, 11-12, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by

    Sasagawa et al (USP 6784574)

(Claims 1, 12)

a) placing the objects in a rectangle (fig 4-15);

b) Evaluating coordinates of the objects (fig 4-15, col 5-6, 17-19, 22, 25, 30, 45); and

c) Adjusting the coordinates of the objects to establish a substantially uniform density of

objects in the rectangle (fig 4-15, col 5-6, 17-19, 22, 25, 30, 45).

(Claims 7, 11, 17) wherein step c) comprises:

c1) dividing the rectangle into first and second rectangles having equal free areas (fig 12-13),

c2) dividing the rectangle into third and fourth rectangles having equal areas of objects (fig 12-

13), and

c3) adjusting coordinates the objects based on boundaries between the first and second rectangles

and between the third and fourth rectangles (fig 4-15, col 5-6, 17-19, 22, 25, 30, 45).

2. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Scepanovic et al

(USP 6292929)

(Claims 1, 12)

a) Placing the objects in a rectangle (fig 13-20, 26, 30-32, 35, 39-40, 42, 44-48, 52);

b) Evaluating coordinates of the objects (fig 7-9, 12-19, 30, 32, 38-39); and

c) Adjusting the coordinates of the objects to establish a substantially uniform density of objects in the rectangle (fig 32, col 51-52).

(Claims 2, 13) further comprising: d) after step c), evaluating coordinates of the objects (fig 7-9, 12-20, 30, 32, 38-39), and re-positioning objects (abstract, col 2 line 54+, col 3 lines 15-22, col 47-49, summary, fig 11-13, 15, 17, 21-22, 32, 36, 39, 42).

(Claims 3-4, 14-15) wherein the objects include fixed objects and non-fixed objects (fig 11-12, 22, 32, 36, 42), and step b) applied to non-fixed objects and step d) is applied to fixed and non-fixed objects.

(Claims 5, 16) wherein the objects include wires and cells connected by wires and step b) comprises: b1) evaluating wire coordinates based on cell coordinates (fig 7-9, 12-19, 30, 32, 38-39), and b2) evaluating cell coordinates based on wire coordinates (fig 7-9, 12-19, 30, 32, 38-39).

(Claim 6) wherein the objects include wires and cells connected by wires and step b) comprises:

b1) assigning wires to positions between cells to which the respective wire is connected (fig 3-4, 6-9, 12-15, 22, 36, 39, 42), and b2) assigning new cell coordinates to connect the cells to their respective wires (fig 3-4, 6-9, 12-15, 22, 36, 39, 42).

(Claims 7, 11, 17) wherein step c) comprises:

c1) dividing the rectangle into first and second rectangles having equal free areas (fig 16, 20),

c2) dividing the rectangle into third and fourth rectangles having equal areas of objects (fig 16, 20), and

c3) adjusting coordinates the objects based on boundaries between the first and second rectangles and between the third and fourth rectangles (fig 7-9, 12-20, 30, 32, 38-39).

(Claims 8, 18) wherein the objects are megacells, logic cells and flip-flop cells, and the process is applied placing the megacells, logic cells and flip-flop cells in an IC, the process further comprising: d) before step a) creating clusters of logic cells and flip-flop cells (fig 5).

(Claims 9, 19) wherein step d) comprises: d1) creating a cluster for each flip-flop cell (fig 5),

d2) creating a cluster for each logic cell in a path that does not terminate at a flip-flop cell (fig 5), and d3) assigning each logic cell in a path that terminates at a flip-flip cell to the cluster of a flip-flop cell at termination of the respective path (fig 5).

(Claim 10) wherein step d3) comprises: if the path begins and ends at respective flip- flop cells, assigning the corresponding logic cell to the cluster of the flip-flop cell closest to the logic cell (fig 5), and if the path begins or ends, but not both, at flip-flop cell, assigning the corresponding logic cell to the cluster of the flip-flop cell (fig 5)

3.   Claim 1, 7, 11-12, 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Scepanovic et al (USP 6134702)

(Claims 1, 12)

a) placing the objects in a rectangle (fig 3-4, 8-11);

b) Evaluating coordinates of the objects (fig 7-17); and

c) Adjusting the coordinates of the objects to establish a substantially uniform density of objects in the rectangle (fig 7-17).

(Claims 7, 11, 17)

Dividing the rectangle into first and second rectangles having equal free areas (fig 4),

Dividing the rectangle into third and fourth rectangles having equal areas of objects areas (fig 4), and

Adjusting coordinates the objects based on boundaries between the first and second rectangles and between the third and fourth rectangles (fig 7-17)

4.   Claims 1 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Gasanov et al (USP 6637016 in IDS submitted 6/8/05)

a) Placing the objects in a rectangle (fig 4-7);

b) Evaluating coordinates of the objects (fig 4-7); and

c) Adjusting the coordinates of the objects to establish a substantially uniform density of objects in the rectangle (fig 4-7).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is 571-272-1890. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul Dinh

Patent Examiner